UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/723,363	11/26/2003	Mark E. Tuttle	M4065.1286/P1286	9952

45374 7590 08/23/2007

DICKSTEIN SHAPIRO LLP
1825 EYE STREET, NW
WASHINGTON, DC 20006

EXAMINER	
ABDI, AMARA	

ART UNIT	PAPER NUMBER
2624	

MAIL DATE	DELIVERY MODE
08/23/2007	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/723,363	TUTTLE ET AL.	
	Examiner	Art Unit	
	Amara Abdi	2624	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *26 November 2003*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-3,14,18-20,22,26,27,29 and 39* is/are pending in the application.

4a) Of the above claim(s) *4-7,12,15,16,21,23,24,30,31,34,43 and 48* is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-3,14,18-20,22,26,27,29 and 39* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date *See Continuation Sheet*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

Continuation of Attachment(s) 3). Information Disclosure Statement(s) (PTO/SB/08), Paper No(s)/Mail Date :07/20/2005 12/27/2005.

DETAILED ACTION

Election/Restrictions

1. Applicant's election with traverse of Species 1 represented by Figure 4 on 07/01/2007 is acknowledged. The traversal is on the ground(s) that the office Action fails to provide a prima facie basis for the election of species requirement, ie, it does not explain that the invention have a separate classification, or separate statutes in the prior art, or different field of search as defined in M.P.E.P § 808.02, and M.P.E.P § 803.
This is not found persuasive. The M.P.E.P § 806.04(b) direct as follows: "Where species under a claimed genus are not connected in any of design, operation, or effect under the disclosure, the species are independent inventions."

The species are independent or distinct because the specie 1 illustrates a side cross-sectional view of a microelectronic imager with the imaging unit and the optic unit according to one embodiment of the invention; the specie 2 illustrates a side cross-sectional view of microelectronic imager in accordance with another embodiment of the invention where the first referencing element of the imaging unit is simply a footing in which the first alignment component is an outer wall and the first stop component is an upper surface; the specie 3 illustrates a side cross-sectional view of a microelectronic imager in accordance with another embodiment of the invention where the imager has several components; the specie 4 illustrates a side cross-sectional view of a microelectronic imager in accordance with another embodiment of the invention where the imaging unit includes the die and a cover over the die; the specie 5 illustrates a side

cross-sectional view of a microelectronic imager in accordance with another embodiment of the invention where the optical unit includes a substrate and the optic member attached to the substrate; the specie 6 illustrates a side cross-sectional view and a schematic top cross-sectional view of a microelectronic imager in accordance with an embodiment of the invention where the microelectronic imager includes a plurality of external contacts operatively coupled to the image sensor; and the specie 7 illustrates a side cross-sectional view of microelectronic imager in accordance with another embodiment of the invention where the first interface feature includes inclined surfaces.

Claims 1-3,14,18-20,22,26-27,29, and 39, are readable on the elected Species (Specie 1).

Claims 4-7,12,15,16,21,23-24,30-31,34,43, and 48 are not readable on the elected Species (Specie 1), because of the following reasons:

- In claims 4,6,21, 23, the imaging unit comprises a cover over the die, which is not readable on the elected Specie 1;
- In claims 5, the first referencing element comprise a first support on the die around the image sensor and the second referencing element comprises a second, which is not readable on the elected Specie 1;
- In claims 7 and 16, the first referencing element comprises a first support having a first step and the second referencing element comprises a second support having a second step that is not readable on the elected Specie 1;
- In claim 12, the first referencing element comprises the first support

projecting from the die and a first radial alignment component at the support, which is not readable on the elected Specie 1;

- In claims 15 and 43, the first referencing element comprises a first support projecting from the die, where the first support includes the first alignment component and the first stop component, which is not readable on the elected Specie 1;

- In claim 24, the first referencing element comprises a first support having a first step, which is not readable on the elected Specie 1;

- In claim 30, the image sensor comprises a cover over the image sensor, which is not readable on the elected Specie 1;

- In claim 31, the first interface area comprises a first step and the second interface area comprise a second, which is not readable on the elected Specie 1;

- In claims 34, the first stand-off section comprises a cover over the die, which is not readable on the elected Specie 1.

- In claim 48, the first referencing element comprises a cover over the die, which is not readable on the elected Specie 1.

Claim Rejections - 35 USC § 102

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in a patent granted on an application for patent by another filed in the United States before the invention thereof by the applicant for patent, or on an international application by another who has fulfilled the requirements of paragraphs (1), (2), and (4) of section 371(c) of this title before the invention thereof by the applicant for patent.

3. Claims 1-3,14,26-27, and 29 are rejected under 35 U.S.C. 102(e) as being anticipated by Chang et al. (US 6,621,522).

(1) Regarding claim 1:

Chang et al. disclose a microelectronic imager (column 3, line 18), (the microelectronic device is read as the scanning device) comprising:

an imaging unit including (a) a microelectronic die with an image sensor and a plurality of external contacts electrically coupled to the image sensor, and (b) a first referencing element fixed to the imaging unit (column 3, line 20-21), (the imaging unit is read as CCD); and

an optics unit having an optic member and a second referencing element fixed to the optics unit, the second referencing element being seated with the first referencing element at a fixed, preset position in which the optic member is situated at a desired location relative to the image sensor (column 3, line18-19), (the optic unit is read as a light source).

(2) Regarding claim 2:

Chang et al. disclose the imager, where:

the first referencing element has a first interface feature at a first reference location relative to the image sensor on the die (column 3, line 43-44), (the scanner mask device is read as the first referencing element);

the second referencing element has a second interface feature at a second reference location relative to the optic member (column 3, line 44-45), (the sensor mask device is read as the second referencing element); and

the first interface feature is engaged with the second interface feature with the first reference location coinciding with the second reference location whereby the optic member is aligned with the image sensor and positioned at a desired distance from the image sensor (column 3, line 25-27).

(3) Regarding claim 3:

Chang et al. disclose the imager, where:

the first referencing element comprises a first support projecting from the die, the first support having a first alignment component at a preset lateral location from the image sensor and a first stop component at a fixed, preset elevation from the image sensor (column 3, line 43-44); and

the second referencing element comprises a second support fixed to the optics unit, the second support having (a) a second alignment component juxtaposed to the first alignment component to align the optic member with a centerline of the image sensor (column 3, line 25-27), and (b) a second stop component juxtaposed to the first stop component to space the optic member apart from the image sensor by a desired distance (column 3, line 44-45).

(4) Regarding claim 14:

Chang et al. disclose a microelectronic imager (column 3, line 18), (the microelectronic device is read as the scanning device) comprising:

a microelectronic die having an image sensor and a plurality of contacts electrically coupled to the image sensor (column 3, line 20-21)

a first referencing element fixed relative to the die (column 3, line 43-44), (the scanner mask device is read as the first referencing element), the first referencing element having a first alignment component at a lateral distance from the image sensor and a first stop component spaced apart from the image sensor along an axis normal to the image sensor by separation distance (column 3, line 25-27);

an optics unit having an optic member (column 3, line18-19); and

a second referencing element connected to the optics unit (column 3, line 44-45), (the sensor mask device is read as the second referencing element), the second referencing element having a second alignment component engaged with the first alignment component to align the optic member with the image sensor and a second stop component engaged with the first stop component to space the optic member apart from the image sensor by a desired distance (column 3, line 25-27).

(5) Regarding claim 26:

Chang et al. disclose a microelectronic imager (column 3, line 18), (the microelectronic device is read as the scanning device) comprising:

an imaging unit including (a) a microelectronic die with an image sensor and a plurality of external contacts electrically coupled to the image sensor, and (b) a first stand-off section fixed to the imaging unit and having a first interface area at a set reference position relative to the image sensor(column 3, line 20-21), (the imaging unit is read as CCD); and

an optics unit having an optic member and a second stand-off section fixed to the optics unit, the second stand-off section having a second interface area at a set reference position relative to the optic member, and the first interface area being seated with the second interface area to connect the first stand-off section with the second stand-off section in a configuration in which the optic member is at a desired location relative to the image sensor (column 3, line18-19), (the optic unit is read as a light source, and the connecting of the first stand-off section with the second stand-off section is read as the aligning of the optic member with the image sensor).

(6) Regarding claim 27:

Chang et al. disclose the imager, where:

the first stand-off section projects from the die, and the first interface area has a first alignment component at a preset lateral location from the image sensor and a first stop component at a fixed, preset elevation from the image sensor (column 3, line 43-44); and

the second stand-off section projects from the optics unit, and the second interface area has (a) a second alignment component juxtaposed to the first alignment component to align the optic member with a centerline of the image sensor (column 3, line 25-27), and (b) a second stop component juxtaposed to the first stop component to space the optic member apart from the image sensor by a desired distance (column 3, line 44-45).

(7) Regarding claim 29:

Chang et al. disclose the imager, where the first stand-off section projects from the die and extends around the image sensor (column 3, line 43-44), (the scanner mask device is read as the first stand-off section) and the second stand-off section projects from the optics unit extends around the optic member (column 3, line 44-45), (the sensor mask device is read as the second stand-off section), and the first interface area is mated with the second interface area (the central support is read the element, which is mating the first referencing element with the second referencing element).

4. Claim 39 is rejected under 35 U.S.C. 102(e) as being anticipated by Giroux (US 5,341,213).

Giroux disclose a method of packaging an imager (column 2, line 6-7), comprising:

providing an imaging unit having (a) a microelectronic die with an image sensor and a plurality of external contacts electrically coupled to the image sensor, and (b) a first referencing element fixed to the imaging unit and having a first interface feature at a set reference position relative to the image sensor (column 4, line 25-26), (the imaging unit is read as CCD array);

providing an optics unit having an optic member and a second referencing element fixed to the optics unit, the second referencing element having a second interface feature at a set reference position relative to the optic member (column 4, line 26-27), (the optic unit is read as convex focusing lens); and

attaching the second referencing element to the first referencing element by seating the second interface feature with the first interface feature in a predetermined position in which the optic member is at a desired location relative to the image sensor (column 2, line 20-25), (the attaching of the second referencing element to the first referencing element is read as the same concept as the aligning a photoreceptive charged device (CCD's) arranged in the array of a sensor of an imaging system).

Claim Rejections - 35 USC § 103

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

6. Claims 18-20, and 22 are rejected under 35 U.S.C. 103(a) as being unpatentable over Chang et al. in view of Giroux (US 5,341,213).

(1) Regarding claim 18:

Chang et al. disclose all the subject matter as described in claim 1 above.

Chang et al. do not explicitly mention the spacing of the optic member apart from the image sensor by a desired distance when the first and second referencing elements are seated together.

Giroux, in analogous environment, teaches an alignment of radiation receptor with lens by Fourier optics, where the optic member is spaced from the image sensor by

a desired distance (column 8, line 1-4), (the distance between peaks is read as the same concept as the distance between the optic member and the image sensor).

It would have been obvious to one having ordinary skill in the art at the time the invention was made to use the system of Giroux, where the optic member and the image sensor are spaced by a desired distance, in the system of Chang et al. in order to have an accurate positioning of the photodetectors produces a burden in a process of manufacturing an imaging system (column 1, line 31-33).

(2) Regarding claim 19:

Chang et al. further disclose the imager, where:

the first referencing element has a first interface feature at a first reference location relative to the image sensor on the die (column 3, line 43-44), (the scanner mask device is read as the first referencing element);

the second referencing element has a second interface feature at a second reference location relative to the optic member (column 3, line 44-45), (the sensor mask device is read as the second referencing element); and

the first interface feature is engaged with the second interface feature with the first reference location coinciding with the second reference location whereby the optic member is aligned with the image sensor and positioned at a desired distance from the image sensor (column 3, line 25-27).

(3) Regarding claim 20:

Chang et al. further disclose the imager, where:

the first referencing element comprises a first support projecting from the die, the first support having a first alignment component at a preset lateral location from the image sensor and a first stop component at a fixed, preset elevation from the image sensor (column 3, line 43-44); and

the second referencing element comprises a second support fixed to the optics unit, the second support having (a) a second alignment component juxtaposed to the first alignment component to align the optic member with a centerline of the image sensor (column 3, line 25-27), and (b) a second stop component juxtaposed to the first stop component to space the optic member apart from the image sensor by a desired distance (column 3, line 44-45).

(4) Regarding claim 22:

Chang et al. further disclose the imager, where the first referencing element comprises a first support having a first step (column 3, line 43-44), (the scanner mask device is read as the first referencing element) and the second referencing element comprises a second support having a second step (column 3, line 44-45), (the sensor mask device is read as the second referencing element) mated with the first step of the first support (column 3, line 42-44), (the central support is read as the element, which is mating the first referencing element with the second referencing element).

Contact Information:

7. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Amara Abdi whose telephone number is (571) 270-1670. The examiner can normally be reached on Monday through Friday 7:30 Am to 5:00 PM E.T..

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Wu Jingge can be reached on (571) 272-7429. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Amara Abdi
08/16/2007.

JINGGE WU
SUPERVISORY PATENT EXAMINER